

DISCUSSION OF THE AMENDMENT

The specification has been corrected so that the headings and tables conform to the description of the appropriate comparative examples.

Claims 1 and 12 have each been amended by incorporating the subject matter of Claim 3 therein, by narrowing the upper part of the parts by weight range for component (B) to --18-- parts by weight, as supported at, for example, Examples 6 and 9 in Table 1 at page 32, and by narrowing the parts by weight range for component (C) to --0.1 to 18-- parts by weight, as supported at, for example, Example 12 in Table 1 at page 32, combined with Example 14 in Table 2 at page 33, all of the specification. Claim 3 has been canceled. Claims 4 and 5 have each been amended to depend on Claim 1.

No new matter is believed to have been added by the above amendment. Claims 1, 2 and 4-12 are now pending in the application.

REMARKS

The rejections under 35 U.S.C. § 103(a) of Claims 1-5 and 9-12 as unpatentable over U.S. 5,006,601 (Lutz et al) in view of U.S. 4,584,344 (Baer)<sup>1</sup>, and Claims 6-9 and 12 as unpatentable over Lutz et al in view of Baer, and further in view of U.S. 5,030,667 (Shimizu et al), are respectfully traversed.

The present invention relates to a thermoplastic resin composition containing various fillers added therein, a production method thereof, and a molded article.

As described in the specification under "Description of Related Art," beginning at page 1, second paragraph, when a large amount of filler is added to a thermoplastic resin to be molded, adhesion of degraded resin or fillers in the resin onto lips of a die (die deposit) and migration of fillers in a resin composition onto the metal surface in contact with the resin (plate-out) occur during molding, thereby causing surface irregularities and filler specks and a reduction in impact strength. While the use of processing aids have been suggested in the prior art to solve these problems, die deposit and plate-out are not sufficiently suppressed.

To solve these problems, Applicants have discovered that when a polytetrafluoroethylene-containing powder mixture and an acrylic polymer are added to a thermoplastic resin, die deposit and plate-out do not occur during molding even when fillers are added. Applicants also discovered that when using such a thermoplastic resin, a molded article having excellent appearance without causing surface irregularities and filler specks and reduction of impact strength, can be obtained.

As recited in above-amended Claim 1, the invention is a thermoplastic resin composition comprising a thermoplastic resin (A), an acrylic polymer (B), a polytetrafluoroethylene-containing powder mixture (C) and a filler (D), an amount of the acrylic polymer (B) being from 0.1 to 18 parts by weight, an amount of the filler (D) being

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<sup>1</sup> Applicants note that the Examiner incorrectly listed Baer as U.S. 5,484,344.

from 1 to 2000 parts by weight, based on 100 parts by weight of the thermoplastic resin (A), wherein an amount of a polytetrafluoroethylene component in the polytetrafluoroethylene-containing powder mixture (C) is from 0.1 to 18 parts by weight based on 100 parts by weight of the thermoplastic resin (A), and wherein the acrylic polymer (B) comprises an acrylic monomer (b-1) containing an alkyl methacrylate and/or an alkyl acrylate, an alkyl group of which has 1 to 18 carbon atoms, and a reduced viscosity ( $\eta$  sp/C) at 25°C of a solution prepared by dissolving 0.1 g of the acrylic polymer in 100 ml of chloroform is 15 or less.

As recited in above-amended Claim 12, the invention is also a method of improving moldability of a thermoplastic resin composition.

The supremacy of the present invention is demonstrated by the comparative data in the specification, as detailed in Tables 1-13. These Tables contain results for molded articles with regard to various criteria, i.e., occurrence of die deposits, appearance of the molded articles, and occurrence of plate-out, as described in the specification beginning in the paragraph bridging pages 30 and 31. While the examples according to the invention generally met all of the required criteria, the comparative examples did not.

The above-discussed comparative results could not have been predicted by the applied prior art.

Lutz et al discloses an impact resistant polymeric composition, wherein an elastomer, which may include an acrylic elastomer (column 6, lines 42-45), is present along with a thermoplastic polyamide and a polyolefin (paragraph bridging columns 1 and 2), which composition may contain up to 50% by weight of, for example, fillers and nucleating agents, wherein finely divided polytetrafluoroethylene (PTFE) is listed (column 13, lines 15-23).

Baer discloses thermoplastic compositions consisting essentially of a polyamide matrix and a multiphase core-shell polymer (column 2, line 7ff), which is an elastomer based

composite interpolymer material having a crosslinked elastomer core and a rigid thermoplastic polymer shell (column 3, lines 5-8), wherein the elastomer core may be an acrylic elastomer (column 3, lines 9-10).

Shimizu et al is relied on for its disclosure of PTFE powder coated with an acrylic polymer and of a particular particle size for improving various physical properties of thermoplastic resins.

The Examiner's rationale is that it would have been obvious to one of ordinary skill in the art to increase the impact strength of a polyamide thermoplastic resin with an acrylic elastomer in a composition which can contain fillers, including PTFE particles.

In reply, even if the prior art were combined as suggested by the Examiner, the result would still not be the presently-claimed invention, which addresses a different problem from that disclosed in the prior art and which contains different components. Particularly, the presently-recited acrylic polymer (B) is **not** an elastomer, and is different from the cross-linked elastomer of Lutz et al and the multiphase core/shell polymer of Baer. Nor is there any reason to believe that the acrylic materials of Lutz et al and Baer have a reduced viscosity in chloroform of 15 or less, as required by the present claims. Moreover, even if there was some overlap between the elastomers of Lutz et al and Baer, on the one hand, and acrylic polymer (B) herein, on the other hand, this prior art could not have predicted the above-discussed comparative results, which results show, *inter alia*, the importance of at least some of the amount ranges recited in the claims, in addition to the presence or absence of presently-recited acrylic polymer (B). Shimizu et al does not remedy any of the above-discussed deficiencies in the combination of Lutz et al and Baer.

For all the above reasons, it is respectfully requested that these rejections be withdrawn.

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Reply to Office Action of February 23, 2005

All of the presently pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

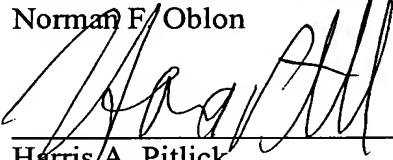
Customer Number

**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 06/04)

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman F. Oblon

A handwritten signature in black ink, appearing to read 'Harris A. Pitlick', is written over a horizontal line.

Harris A. Pitlick  
Registration No. 38,779

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